

FIFTH EDITION

PERSPECTIVES ON LEARNING

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Contents

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Introduction

This is a book about theories of learning. In it we want to get you to think about learning—how it happens, and what it is. Obviously, as a teacher, your job is or will be to help others learn. You may already have some good ideas about learning—after all, you have been doing it yourself for some time. Or you may feel there is not much for you to think about regarding learning since modern learning theorists surely must know all there is to know about it by now. Perhaps all you need to do is read about their theories and heed what they say when you teach or design curricula. Unfortunately, that is not so easy to do. Theorists do not all agree about what learning is or how it happens. Psychologists, anthropologists, linguists, neurophysiologists, philosophers, and others are still trying to understand how people learn. For there are great complexities—there seem to be different types of learning, some involving mental events such as remembering, analyzing, discriminating, and so forth, and some others that involve bodily movements and their coordination, such as when you learn to pitch a baseball. Certainly, theorists and researchers have some good ideas that will help you think about learning, and we will deal with many of them in this book. But ultimately, it is you who will have to make the best sense you can of how to foster various types of human learning in order to become a thoughtful and effective educator.

Learning

To get you into the right frame of mind to think about learning and to help you to see what this book is about, imagine that several of your friends were to contact you and ask a favor. One wants to learn to keep off junk food and seeks your advice and encouragement; the second is trying to learn Spanish vocabulary and asks you to act as tutor; the third has heard you debate in public, admires your skill, and wants your help in learning how to do it for herself; and the fourth friend is learning physics and is stuck on Einstein's theory, and he asks you to explain it to him. Being generous in nature, and also a very talented person, you agree to help all of them!

Clearly, in all four cases you would be assisting a person to learn. But it is also clear that the types of learning involved are quite different. In the first case you would be helping someone to break a habit (dependence upon junk food no doubt is partly psychological, but also partly physiological, so what we have here is a learning assignment that involves the mental and the physical realms); in the second you would be helping a person commit information to memory; in the third case you would be teaching your friend a new and complex skill (again this involves the mental/psychological realm and the physical/motor realm); and your fourth friend needs to be taught something quite abstract (and taught so that he achieves that mysterious state we call "understanding"). No doubt you would use different teaching strategies: the method you use to teach your friend to avoid junk food would not work with the learning of debating skills. And rote memorization, which works in the case of foreign words, is not likely to succeed with learning Einstein's theory. Your friend could memorize it, certainly, but this will not necessarily enable him to understand or apply it intelligently, and that presumably is what he is after.

The Teacher's Responsibility

How would you go about selecting a suitable teaching strategy in each case? How would you know that it was suitable? If one of your friends failed to learn, would you blame yourself for selecting a poor method? Teachers face these issues all the time, but with added complexity thrown in. They are not usually helping one person at a time, but are trying to promote learning in a class of perhaps thirty or more students. What teaching method would you use if all four of your friends turned up at one time? And how convinced are you that there *is* a single method or approach that would work adequately in all four cases? Furthermore, you are safe in assuming that your friends want to learn the things they have sought your help with, but this is not always a safe assumption to make in a classroom. Promotion of learning is not unidimensional—the importance of motivating students to learn cannot be emphasized enough; also important is catering for students who have different learning abilities and who cover the work at different rates, deciding what content to teach and what activities to organize in order to facilitate this learning, maintaining discipline, and socializing students to become functioning members of society—all these are grist to the teacher's mill. Thus, anything you learn will have to be balanced against these other things; a teacher is constantly making difficult "judgment calls."

This book does not cover all the complexities of a teacher's life in the classroom—it is a book about theories of learning. In it we can only hope

to stimulate you to think about learning, about the forms it takes, and about what you, as a teacher, might do to promote it in students. We cannot make you a good teacher. You have to do that for yourself. But thinking seriously about theories of learning should help.

The Variety of Theories

At this point you may have become aware of the suspicious fact that we have been using a key word in the plural: "theories" of learning. Using the plural here is in marked contrast with the mainstream tendency over the course of Western thought to treat the learning of propositions (such things as "Sydney is the oldest and largest city in Australia") as the basic type of learning that should be the starting point for a theory that will apply to *all* cases of learning. In common with other philosophers, we reject this simplifying assumption.

So, then, why is there more than one theory in this area? There are several answers. In the first place, as we have already illustrated, there is more than one type of learning. It is not clear whether a theory that explains how habits are formed, or how facts are memorized, will also explain how a learner comes to understand a complex and abstract piece of science. (In the field of medicine, the "germ theory of disease" does not explain genetic defects—different types of phenomena require different explanations.) Of course, some researchers who accept the mainstream assumption mentioned above are trying to develop a single comprehensive learning theory; indeed, scientists in many fields are driven to integrate knowledge in this way, for if they are successful the results give a great deal of intellectual satisfaction and solve a number of diverse problems. But so far, in the field of learning, no such attempt has been a resounding success. Indeed, some theorists believe the mind is "modular," composed of a number of differently functioning systems that have been cobbled together in the course of evolution; others insist that the types of learning are so different that it is unreasonable to expect that a single theory could cover them all.

To help you see what we mean, consider some of the things you have learned in your life so far—and then think about how you learned them. For instance, most of us have learned directly from experience without instruction, study, or practice that ice is cold, flames are hot, water is wet, and knives can cut. However, when we learned the alphabet and how to count to ten, almost certainly we all required a little initial supervised instruction and needed to do some sing-song practicing. But it would be hard to think of learning to play chess or to drive a car without undergoing sustained instruction and without focusing one's mental efforts on the tasks embodied in the mastery of such things.

What do these examples suggest? First, there seem to be different sorts of learning, some simple and some complex, some involving the acquisition of knowledge and others involving the mastery of skills and the formation of dispositions. Second, while some things can be learned without a teacher, there are many situations in which the help of a teacher is vital for many learners.

There also is a possibility that different theories of learning have resulted from various investigators approaching the phenomenon of learning from different directions and armed with different initial "hunches." You may recall the old Indian folk tale about the blind men who were given an elephant to examine. The man who felt the tail got quite a different impression of the beast than the man who felt one of the legs, while the man who started with the trunk reached yet another startling conclusion. So it is in all scientific enquiries—the initial ideas or hypotheses the investigator forms may color his or her later conclusions.

Consider the following possibilities: If one were to focus on how a child learns that flames are hot and take this to be a typical case of learning, a particular (and probably narrow) experiential learning theory most likely would result. But such a theory probably would be different from one that would result from starting with a different case—say, how a child learns to count to ten. Neither of these theories, however, would be likely to be formulated by someone who had selected as a typical case of learning more complicated things like how people learn to drive a car or how high school students learn history. Thus, a psychologist or educational researcher who starts with the insight that humans are part-and-parcel of the animal kingdom may try to explain human learning in the same way that animal learning is explained (say, the learning processes in pigeons or rats). On the other hand, a researcher who regards the human brain as a type of computer, differing from the popular brands largely in that it is made of protoplasm instead of silicon chips, may try to explain as much learning as possible in data-processing terms.

It would be a mistake to think that only researchers hold such divergent, rival views. Teachers, too, vary a great deal in the underlying images they have of the nature of their students. Some regard all members of their school classes as being potentially equal in ability to learn, while others regard the students as inherently quite different; some regard the school as having great power to shape the minds of the students, while others regard it as being marginally influential at best; some see the students as unwilling and rebellious, while others see them as eager to learn and inclined to behave if they are treated properly.

Whatever your view on these matters, as a professional charged with fostering the intellectual development of your students, you should be acquainted with the variety of theories that have been put forward. Your

eyes will be opened to new possibilities, and to facets of your students that you might otherwise not notice. Just as travel broadens the mind, so does acquaintance with rival viewpoints. You should reflect on the various theories of learning, and think about the implications that they have for your work in the classroom. The following chapters should help you set out on this professional journey.

An Objection: We Don't Need Theories, Just Common Sense

Research in education and the social sciences is sometimes criticized on the ground that it is futile, for it only comes up with "findings" that are so obvious that anyone with common sense knew these things before the research was done. This attitude is particularly common in the realm of teaching; there is nothing mysterious or complex here, for the principles are pretty obvious to anyone who reflects for just a few moments—a book like *Perspectives on Learning* is quite unnecessary!

Fortunately for us, as authors, there is a decisive two-pronged answer to this. First, there actually has been some research on what people regard as "obvious."¹ Several decades ago a student of the great educational psychologist Nathaniel Gage drew up two lists of supposed "findings" of social science research; the second list contained the opposites of the items on the first list. (List one might have items like "teenage girls are better at Z than boys," while the second list would have "teenage girls are not as good as boys at Z.") A large number of laypeople were shown one or the other of the lists (nobody, of course, was shown both lists), and asked to judge whether or not each of the reported "findings" was so obvious that the research should not have been done. In many cases, *both* of the contradictory findings were judged to be so obvious that the result was commonsensical! The moral here, of course, is that we need to be cautious about what we judge to be commonsense knowledge. (And recall that our ancestors thought it was commonsense that the world was flat, and that the cure for many diseases—possibly including anemia—was to "bleed" the patient.)

The second point in the answer to the objection that all we need to foster learning is common sense is that there is often bias in the selection of examples; clearly there are some occasions when research confirms the "obvious," but we should not overemphasize these and ignore the many important cases where the answer to the question is not obvious at all. (Nor should we downplay the importance of actually confirming the obvious!) Is it obvious, before research, which method of teaching reading—"phonics" or "whole language"—is most effective and what the unintended harmful consequences of each might be? Is it obvious, in teaching

a new mathematics skill, whether or not “massed practice” is superior to “distributed practice” (that is, giving a large number of practice exercises in a clump, or spreading the practice out over a somewhat extended time frame)? Is it obvious, before research, what the limitations to human memory are? If gender differences are found in some educational performance, is it obvious before research whether the difference is due to biological/developmental or sociocultural factors?

The Plan of the Book

We will start with a consideration of two classical theories of learning that may appear simple and a little strange to modern eyes. But we will try to show that Plato’s “recollection” theory and Locke’s “blank tablet” theory offer some interesting ways to think about learning and set some problems and issues with which modern theories are still trying to deal.

Then we will look at behaviorism, a theory of learning that dominated the field of psychology for a large part of the twentieth century. The behaviorist takes learning to be the result of actions of the environment on the learner. For instance, we learn that a lightning flash is soon followed by thunder and so we also may learn to cover our ears whenever we see lightning. Sometimes we find our environment and our actions in it to be rewarding and so we learn to repeat actions that generally result in something nice happening to us. People who are good at ping-pong and frequently win tend to play more often than those who lose every match. According to this behaviorist theory, we learn to act in acceptable ways by being praised when we do good things and by praise being withheld when we do not.

The behaviorist theory has been challenged by a number of other theories and we shall consider the major challengers in subsequent chapters. Gestalt theory views learning as a process involving the attempt to think things out and then having “it all come together” suddenly in the mind. Sometimes it is jokingly referred to as the “Aha!” or “Got it!” theory of learning or, more seriously, the “insight” theory. It is like poring over your class notes before an exam and finally coming to see how the ideas dealt with relate to one another. To explain this mental phenomenon, the Gestalt psychologists looked beyond behavior and the environment, and they tried to throw light on learning by investigating tendencies of the mind to pattern and structure experience.

Beginning with a hunch about the importance of firsthand experience to learning, John Dewey developed a “problem solving” theory of learning whose basic premise was that learning happens as a result of our “doing” and “experiencing” things in the world as we successfully solve real

problems that are genuinely meaningful to us. School learning then, he argued, must be based on meaningful student experiences and genuine student problem solving. He believed that textbook problems most often were not real problems to students and that school learning should be an experientially active, not a passive, affair.

Taking a biological approach, Piaget viewed learning as an adaptive function of an organism. By means of learning, an organism develops “schemes” for dealing with and understanding its environment. For Piaget, learning is the individual’s construction and modification of structures for dealing successfully with the world. He also claimed that there are stages of intellectual development that all human beings pass through as they learn certain universal schemes for structuring the world (like the concepts of number, cause, time, and space) and as they learn certain aspects of logical reasoning. Piaget’s ideas have inspired many subsequent theorists of learning, including the so-called radical constructivists.

A defect in many of the preceding theories is that they consider learning to be an individual phenomenon—the learner is depicted as a lone inquirer. In fact, of course, learners are embedded in a social network; teachers, parents, siblings, and peers, not to mention characters on TV and in films, all influence what each of us will learn. Chapter 6 discusses some basic ideas related to this theme of the social dimension of learning from Dewey, Vygotsky, and Bandura down to the advocates of “situated learning” and participation in communities of practice. Chapter 7 returns to the notion of “structure,” this time with regard to the subject matter to be learned. Since subjects are organized bodies of knowledge, it might help learners if they could see or construct for themselves the basic outline or structure of the subject they are studying. Dewey, Bruner, Schwab, and Hirst offer some insights into this process. One of the justifications for teaching the structure of a subject is that this facilitates using the material in new contexts—and this is a segue to the age-old issue of transfer of learning. For literally thousands of years it has been held that a major aim of education is to train the mind so that the skills acquired and strengthened in one context can be applied to solving novel problems in other domains. The form this doctrine has taken over the centuries, and how it fares in the light of contemporary research, is the topic of Chapter 8.

Finally, in Chapter 9, we shall look at an emerging theory of learning that comes out of our contemporary technological revolution in computing and artificial intelligence. This approach to learning theory has been called various things but perhaps the best catch-all term for it is the “cognitive science” approach. As we think about learning from this point of view we will have to consider to what extent computers are modeled on human minds and to what extent we can understand minds and learning by treating them as “computerlike.” There may be as many puzzles as there are

answers and insights offered by this emerging view, but we know that it is one that has stimulated much contemporary thinking about learning and is sure to be of import to educators in the future.

The last chapter in this book, Chapter 10, is somewhat different from the others. It is one we hope you will refer to and use as you go through the book itself because it is designed to stimulate further thought about the theories, problems, and issues raised in the book. We call this last chapter "Arguments and Issues." In it there are eighteen vignettes—concrete cases in the form of dialogues, disputes, arguments, and debates—that raise interesting and important issues about learning, and bring theory closer to practice. Whether you refer to some of the cases in Chapter 10 as you go along, or save them for consideration at the end, we are sure you will find that class discussions of these examples will force even deeper thinking about learning and educating. For those who wish to sample some cases relevant to this first chapter before going on to Chapter 2, we recommend "The Relation of Learning Theory to Teaching" and "Different Kinds of Learning?" in Chapter 10. The book ends with references and additional recommendations for further reading that will take you beyond our introductory treatment of theories of learning and keep you thinking about them as you become a professional educator.